

CLAIMS

What is claimed is:

1. A method for calibrating a location system, comprising:
receiving at least one location assertion from at least one mobile communication device;
and
updating a latency calibration record comprising a current base station latency estimate for a base station controller, wherein the updating comprises:
developing a new base station latency estimate by analyzing the at least one location assertion in relation to the latency calibration record; and
refining the latency calibration record using the new base station latency estimate.
2. The method of claim 1, further comprising periodically repeating the receiving and updating.
3. The method of claim 1, wherein the at least one location assertion comprises:
a global positioning system location estimate; and
a range estimate.
4. The method of claim 3, wherein the range estimate is derived from a method selected from the group consisting of advanced forward link trilateration, enhanced observed time difference, and observed time difference of arrival.
5. The method of claim 1, wherein the new base station latency estimate is derived from the at least one location assertion and forward link calibration data, sector center data, and sector position data in the latency calibration record.

6. The method of claim 1, wherein the method for calibrating a location system is performed at a time selected from the group consisting of a predetermined time interval, after a predetermined number of samples, and on demand from a data management service user.

7. The method of claim 1, further comprising evaluating the new base station latency estimate for at least one additional base station controller affiliated with the latency calibration record.

8. A method for calibrating a location system, comprising:
receiving at least one location assertion from at least one mobile communication device;
developing a current position assertion database by collecting a plurality of received location assertions; and
updating a latency calibration record comprising a current base station latency estimate for a base station controller, wherein the updating comprises:
developing a new base station latency estimate by analyzing the current position assertion database in relation to the latency calibration record; and
refining the latency calibration record using the new base station latency estimate.

9. The method of claim 8, further comprising periodically repeating the developing the current position assertion database and updating the latency calibration record.

10. The method of claim 8, wherein the at least one location assertion comprises:
a global positioning system location estimate; and
a range estimate.

11. The method of claim 10, wherein the range estimate is derived from a method selected from the group consisting of advanced forward link trilateration, enhanced observed time difference, and observed time difference of arrival.

12. The method of claim 8, wherein the new base station latency estimate is derived from the current position assertion database and forward link calibration data, sector center data, and sector position data in the latency calibration record.

13. The method of claim 8, wherein the method for calibrating a location system is performed at a time selected from the group consisting of a predetermined time interval, after a predetermined number of samples, and on demand from a data management service user.

14. The method of claim 8, further comprising evaluating the new base station latency estimate for at least one additional base station controller affiliated with the latency calibration record.

15. A method for updating a network of location systems, comprising:
maintaining a base station almanac for each of a plurality of position determining entities,
wherein the base station almanac is used to process location assertions;
developing a new base station almanac for each of the plurality of position determining entities;
synchronizing updates of the new base station almanac for each of the plurality of position determining entities; and
processing additional location assertions using the new base station almanac.

16. The method of claim 15, wherein the method for updating a network of location systems is performed at a time selected from the group consisting of a predetermined time interval, after a predetermined number of samples, and on demand from a data management service user.

17. The method of claim 15, wherein the synchronizing updates is performed by a method selected from the group consisting of:

setting a predetermined time in the future when an update should occur;
defining a predetermined event in the future when the update should occur; and simultaneously sending an update signal to the plurality of position determining entities.

18. A method for calibrating a network of location systems, comprising:
developing a current position assertion database by collecting a plurality of location assertions for each of a plurality of position determining entities;
maintaining a latency calibration record comprising a current base station latency estimate for each of the plurality of position determining entities;
developing a new base station latency estimate by analyzing the current position assertion database in relation to the latency calibration record for each of the plurality of position determining entities;
synchronizing updates of the latency calibration record for each of the plurality of position determining entities;
refining the latency calibration record using the new base station latency estimate for each of the plurality of position determining entities.

19. The method of claim 18, further comprising repeating the previous steps to further refine the latency calibration record for each of the plurality of position determining entities.

20. The method of claim 18, wherein the plurality of location assertions are received from at least one mobile communication device transmitting a location assertion.

21. The method of claim 18, wherein the plurality of location assertions comprises:

a global positioning system location estimate; and
a range estimate.

22. The method of claim 21, wherein the range estimate is derived from a method selected from the group consisting of advanced forward link trilateration, enhanced observed time difference, and observed time difference of arrival.

23. The method of claim 18, wherein the new base station latency estimate is derived from the plurality of location assertions and forward link calibration data, sector center data, and sector position data in the latency calibration record.

24. The method of claim 18, wherein the method for calibrating a network of location systems is performed at a time selected from the group consisting of a predetermined time interval, after a predetermined number of samples, and on demand from a data management service user.

25. The method of claim 18, wherein the synchronizing updates is performed by a method selected from the group consisting of:

setting a predetermined time in the future when an update should occur;
defining a predetermined event in the future when the update should occur; and
simultaneously sending an update signal to the plurality of position determining entities.

26. A location calibration system, comprising:

- at least one mobile communication device;
- at least one base transceiver system for receiving at least one location assertion from the at least one mobile communication device;
- a base station controller for receiving the at least one location assertion from the at least one base transceiver system;
- a position determining entity for collecting and storing in a current position assertion database a plurality of location assertions transmitted from the base station controller;
- a latency calibration record stored in the position determining entity comprising a current base station latency estimate; and
- a data management server for creating a new latency calibration record using the current base station latency estimate and the current position assertion database and distributing the new latency calibration record to the position determining entity.

27. The method of claim 26, wherein the at least one location assertion comprises:

- a global positioning system location estimate; and
- a range estimate.

28. The method of claim 27, wherein the range estimate is derived from a method selected from the group consisting of advanced forward link trilateration, enhanced observed time difference, and observed time difference of arrival.

29. The system of claim 26, wherein the new base station latency estimate is derived from forward link calibration data, sector center data, and sector position data in the latency calibration record and the at least one location assertion.

30. The system of claim 26, further comprising a mobile positioning center for receiving the new latency calibration record from the calibration server.